

**REMARKS**

In the Office Action of January 15, 2003 the Examiner rejected Claims 1, 4 and 11-13 as anticipated by the Yoshioka Patent and rejected the remaining claims as obvious over the Yoshioka Patent in view of the other references. Reconsideration and withdrawal of these rejections is requested in view of the amendments set forth above and the remarks herein. Support for the amendment of claim 1 is found on page 11 of the application, at line 16.

The present invention is directed to an erasable aqueous ink composition comprising at least one colorant and at least one film-forming resin, wherein the colorant has a mean particle size of 2 to 7  $\mu\text{m}$  and wherein particles having a size of not more than 1.8  $\mu\text{m}$  account for not more than 1.6% by weight of said colorant and wherein particles having a size of not less than 7  $\mu\text{m}$  account for not more than 0.5% by weight of said colorant and wherein the composition has a viscosity of 500-5000 mPa's as determined by using an ELD viscometer (3 (R14 cone), 0.5 rpm (20°C)).

The ink composition of the present invention as set forth in amended claim 1 has the specific viscosity (500-5000 mPa's) by gelation or the like. When the ink composition is used for a ball point pen, a high ink viscosity is obtained in the ink tank, the ink composition will not leak from the pen point and colorant separation will not occur. When a shearing force is applied to the ink composition as a result of ball spinning during writing, the ink viscosity is reduced and good dischargeability is thereby attained.

On the other hand, since the ink composition has the specific particle size distribution, lines written on paper or the like with the ink composition can be erased with ease

using a rubber eraser. In particular, even when writing is made with a great tool force, the lines can be erased with ease.

Thus, the ink composition which has the above mentioned feature is best suited as an ink composition for ball point pens. (See the specification, page 7 line 14 - page 8 line 4, page 14 line 22- page 23 line 20).

The Yoshioka patent discloses an erasable writing ink composition having a viscosity of 5 to 35 mPa's comprising a resin having film-forming temperature of 0°C or less or a glass transition temperature of 0°C or less selected from the group consisting of styrene-buradiene rubber and acrylonitrile-butadiene rubber, resious colored spherical fine particles having a particle diameter of 1 to 20 f.µm, a surface active agent and water.

However, the ink composition of the Yoshioka patent has a lower viscosity (i.e. 5-35 mPa's) than that of the present invention. In addition, Yoshioka fails to teach that the ink composition is used for a ballpoint pen. Yoshioka merely discloses the ink composition for a sign pen (See, column 1, lines 49-54 and Fig. 1), which is a felt pen, not a ballpoint pen.

It is impossible for a felt pen to employ higher viscosity ink like the present invention. This is clear from the description of Yoshioka, who mentions in column 4, lines 39-42 that "In case the viscosity has more than 35 mPa's sec, after the ink composition flowed to a pen point when the pen was covered with the cap and allowed to stand, the pen point was clogged, and the writing is impossible". Thus, the viscosity range more than 35 mPa's is contrary to the teaching of this reference.

The Enami reference discloses an aqueous ink composition comprising an aqueous emulsion of a water-insoluble polymeric dyestuff, the water-insoluble polymeric dyestuff being prepared by bonding a water-insoluble polymer containing amino groups, which

polymer is emulsified in an aqueous liquid, with a dye selected from the group consisting of amino-type dyes and reactive dyes. Enami discloses the viscosity of 50-3000 cps (50-3000 mPa's).

However, while the viscosity is higher than that of Yoshioka(5-35 mPa's), there is no motivation to combine Enami with Yoshioka, which excludes the viscosity range of more than 35 mPa's. Such proposed combination would be contrary to the teachings of the Yoshioka reference.

Moreover, Enami is directed to "an aqueous ink composition", not to "an erasable ink composition". Accordingly Enami does not require the particles size distribution in order to give the ink composition the erasable function. As a matter of fact, Enami does not teach the control of the particle size distribution at all.

The Koyama reference discloses a ballpoint pen filled with an erasable ink which comprises a resin having a filming temperature of 0°C or lower or a glass transition temperature of 0°C or lower, a lubricant in the form of an O/W type emulsion, a gelatinizer, pigment particles and water.

However, though Koyama does not disclose a specific viscosity, Koyama aims to obtain a lower viscosity. Koyama sets forth column 2, lines 1-8 that "The present inventors have continued intensive researches to succeed in obtaining a ball point pen filled with an aqueous ink the viscosity of which is reduced by compounding a resin or rubber (hereinafter both shall be called "resin") having a specific filming temperature or a specific glass transition temperature in the form of an emulsion or a latex, to improve in writing feeling, ink flowability, erasability and safety".

Moreover, there is nothing in Koyama about the particle size distribution at all. In

Koyama, the erasable function depends on the special resin only. There is no idea to obtain an erasable function by controlling a particle size distribution in Koyama.

The Uzukiwa reference discloses an ink composition erasable with rubber eraser after writing, the composition comprising, based on the weight of the ink composition, 1 to 50% of a pigment, 3 to 50% of a water insoluble resin having a film-forming temperature of 40°C or higher, 0.5 to 50% of at least one organic solvent selected from the group consisting of alkylene glycols, dialkylene glycols, polyalkylene glycols, and glycerins, and 7 to 60% of water.

However, as the Examiner notes, the low viscosity of Uzukiwa is 100-300 mPa's (See column 4, line 37-43). It is totally different from the viscosity of the present invention (i.e. 500-5000 mPa's).

No motivation to complete the present invention stems from a combination of Uzukiwa which discloses the low viscosity 100-300 mPa's with Enami which requires the viscosity 50-3000 mPa's.

Also, it would not have been obvious to obtain the present invention requiring the high viscosity 500-5000 mPa sec by combining Yoshioka which sets forth the lower viscosity 5-35 mPa's with Koyama which aims at a lower viscosity.

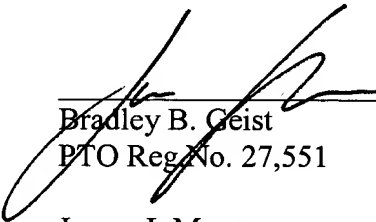
Additionally there would have been no motivation to combine Yoshioka teaching the low viscosity 5-35 mPa's (and specifically excluding the range of more than 35 mPa's) with Uzukiwa teaching the viscosity 100-300 mPa's.

Thus, the present invention would be unobvious to those skilled in the art in view of the cited references.

In view of the Amendment and remarks set forth above, reconsideration and allowance of all claims is respectfully urged.

**Attached hereto is a Version with markings to Show Changes.**

Respectfully submitted,



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**Version with Markings to Show Changes**

Please amend the claims as follows:

1. (Three times Amended) An erasable aqueous ink composition comprising at least one colorant and at least one film-forming resin, wherein said colorant has a mean particle size of 2 to 7  $\mu\text{m}$  and wherein particles having a size of not more than 1.8  $\mu\text{m}$  account for not more than 1.6% by weight of said colorant and wherein particles having a size of not less than 7  $\mu\text{m}$  account for not more than 0.5% by weight of said colorant and wherein the composition has a viscosity of 500-5000 mPa's as determined by using an ELD viscometer (3 (R 14 cone), 0.5 rpm (20°C)).

Cancel claim 9.